

REMARKS

The specification has been amended as suggested by the Examiner to correct the noted informalities. The disclosure has also been amended to identify the described IIR lowpass filter with reference character 61. A replacement Figure 2 is being submitted herewith to show the IIR lowpass filter 61 as part of a power level calculation. No new matter has been added. Accordingly, Applicants respectfully request that these amendments be entered.

Claims 6, 19, 34 and 37 have been amended to correct the noted informality. Claim 34 has also been amended to re-order the steps as suggested by the Examiner. Claims 15 and 29 have been cancelled without prejudice or disclaimer. Claims 1, 4 to 7, 9, 10, 12, 13, 16 to 20, 22, 23, 26 to 28 and 31 to 39 remain pending in the present application and are believed to distinguish patentably over the prior art.

The Examiner has rejected claims 1, 16, 31, 32, 34, 37, 10, 13, 23, 27, 33, 36 and 39 under 35 U.S.C. §112, alleging that these claims are mis-descriptive. In particular, the Examiner is alleging that the term “most significant” in these claims, should, in fact, read “least significant”. Applicants respectfully submit that the Examiner’s objection in this regard is inappropriate. Applicants direct the Examiner’s attention to the passage of the specification commencing on page 7, at line 13 and ending on page 8, at line 5. As described, the string of n-bits masks only that portion of the signal deemed to be echo. In the described example, a mask of seven zeros is selected to cancel an echo of seven significant digits. Further, as discussed in the paragraph of the specification commencing on page 7, at line 29 and ending on page 8, at line 5, it can be desirable not to mask at least one least significant bit of the echo. In this case, the least significant bit of the mask has a one value. The remaining more significant bits, including the most significant bits of the mask therefore, have “zero values”. In view of the above, Applicant respectfully submits that these claims are clear in their present form and that the Examiner’s objection should be removed.

With respect to prior art, the Examiner has rejected claims 1, 4 to 6, 9, 12, 15 to 19, 22, 26, 28, 29 and 32 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,623,980 to Vary (“Vary”) in view of U.S. Patent No. 5,764,753 to McCaslin et al. (“McCaslin”) and U.S. Patent No. 6,128,725 to Leach (“Leach”). The Examiner is alleging that the Applicants’ invention as defined by these claims would be obvious to one of ordinary skill in the art in view of the combined teachings of these references. In particular, the Examiner alleges that Leach teaches least significant bit mask generation circuitry and most significant bit mask generation circuitry to apply masking for echo cancellation and that it would be obvious to combine the

teachings of Leach with those of McCaslin and Vary to arrive at the Applicants' invention as claimed. Applicants respectfully submit that the Examiner's objection in view of the cited references is inappropriate for the reasons set forth below.

According to the Applicants' invention as defined by independent claim 1, Applicants provide a method of suppressing echo signals generated in a communication path. Signals supplied to the communication path are monitored to determine the power level of the monitored signals. Signals received from the communication path are masked as a function of the determined power level of the monitored signals by combining a string of n-bits with the digitized signals, at least the most significant bits of the string having a zero value.

In contrast, Vary discloses a digital filtering device that can be selectively employed for achieving simultaneous filtering, signal improvement, echo or feedback compensation and/or signal masking. During echo cancellation, the microphone signal is split into its spectral components by decimation. The spectral components are then processed using real-value adaptive level control and the processed spectral components are interpolated in the output signal.

McCaslin discloses a variable gain echo suppresser utilizing two variable attenuators. The echo suppresser uses a normalized power level to compute a power ratio that is used to determine an attenuation level. The attenuation level is then used to extract scale factors from look-up tables for the attenuators.

Leach discloses a microprocessor having an instruction fetch/decode unit, a plurality of execution units including an arithmetic and load/store unit, a multiplier, an ALU/shifter unit, an arithmetic logic unit, a shared multipoint registration file and a memory. One of the execution units has circuitry for clearing or setting a designated bit field in a source operand in one execution phase of an instruction execution pipeline. Specifically, the designated bit field in the source operand may be set to all ones or all zeros.

With respect to the Examiner's combination of references, Applicants wish to remind the Examiner that it is impermissible to pick and choose from the relevant prior art to sustain a finding of obviousness while disregarding the teachings of the references as a whole. *In Re Wesslau*, 353 F.2d 238, 241 (C.C.P.A. 1965). In the present situation, the Examiner is picking only that which is necessary from Leach to support his given position, to the exclusion of other parts of Leach that are necessary to appreciate fully that which Leach fairly suggests to one of ordinary skill in the art. Decomposing the Applicants' claimed invention into its constituent elements, finding each of the elements in the prior art and then stating that it is easy to resemble the elements to arrive at the claimed invention is a forbidden *ex post* analysis. *In the Re*

Diamond Rubber Co. of New York v. Consolidated Rubber Tire Co., 220 U.S. 428, 435 (1911) and *In Re Mahurkar Double Lumen Hemodialysis Catheter Patent Litigation*, 831 F. Supp. 1354, 1374-75 (N.D. Ill.1993) aff'd by 71 F.3d 1573 (Fed. Cir. 1995).

The Examiner notes that Leach suggests that his microprocessor may be used in an echo cancelling system. Leach however specifies that his microprocessor is to be used in an echo cancelling system of the type disclosed in U.S. Patent No. 5,072,418 to Boutaub et al. ("Boutaub"). Accordingly to fully appreciate the teachings of Leach it is necessary to examine the teachings of Boutaub.

Boutaub discloses an instructions decoder that uses masks to disable interrupts in instruction sets. Referring to column 39, lines 27 to 30, Boutaub states that "the interrupts mask register is a set of bits by which interrupts to the CPU can be disabled by masking them". Accordingly, Leach when properly prefaced by the teachings of Boutaub discloses the masking of interrupts in instructions strings. Thus, in no way does Leach teach or suggest the use of a mask to cancel echoes in a digitized signal.

In view of the above, Applicants respectfully submit that neither Vary, McCaslin nor Leach either alone or in combination teaches or suggests masking digitized signals received from a communication path as a function of a determined power level of monitored signals by combining a string of n-bits with the digitized signals, at least the most significant bits of the string having a zero value. As a result, Applicants respectfully submit that independent claim 1 distinguishes patentably over the cited prior art and should therefore be allowed. As claims 4 to 6, 9 and 12 depend either directly or indirectly on independent claim 1, which is deemed allowable, Applicants respectfully submit that these claims also distinguish patentably over the prior art and should therefore be allowed.

As independent claims 16 and 32 recite limitations similar to those recited in independent claim 1, Applicants respectfully submit that these claims also distinguish patentably over the cited prior art and should therefore be allowed. As claims 17 to 19, 22 and 26 depend either directly or indirectly on one of independent claims 16 and 32, which are deemed allowable, Applicants respectfully submit that these claims also distinguish patentably over the cited prior art and should therefore be allowed.

Independent claim 28 has been amended to include subject matter of allowable claim 30 and is believed to distinguish patentably over the prior art.

In view of the above, it is believed the application is in order for allowance and action to that end is respectfully requested.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read 'C. Douglass Thomas', written in a cursive style.

C. Douglass Thomas
Reg. No. 32,947

P.O. Box 778
Berkeley, CA 94704-0778